Abstract

Oberwolfach Workshop:

Real Algebraic Geometry with a View Toward

Hyperbolic Programming and Free Probability

Dates:

1 - 7 March 2020   (Code: 2010)

Organizers:

Didier Henrion, Toulouse

Salma Kuhlmann, Konstanz

Roland Speicher, Saarbrücken

Victor Vinnikov, Beer Sheva

This workshop focuses on interactions between real algebraic geometry, operator theory and operator algebras, and optimization, with a particular emphasis on hyperbolic programming and on interrelations with free probability. It is an outgrowth of two previous successful MFO workshops held in 2014 and in 2017, themselves a continuation of a long series of MFO workshops on real algebraic geometry which started in 1984. The mathematical topics of interest include sum-of-squares representations of non-negative polynomials (in commutative and non-commutative algebras) and the dual problem of moments (including various applications), hyperbolic polynomials and their applications to optimization, and free non-commutative topics of free positivity and free probability.